

## CLEANER PRODUCTION OPPORTUNITIES IN PRECURED TYRE RETREADING INDUSTRY

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Retreading is the manufacturing process which extends the life of a used tyre. In Sri Lanka, market demand for retreaded tyres showed a significant drop of approximately 20% from year 2012 to 2013. The main reasons for this drop are the availability of cheap new imported tires and the use of radial tyres which can be used for more months before retreading. In order to compete in the market retreaders have to offer good quality tires at a cheaper price. Further, the rising concern about global change and volatility in fuel prices demand taking critical steps towards energy savings, emission reductions and reducing depletion and production of waste. Implementation of Cleaner Production (CP) in tyre retreading helps environmental protection, emission reduction, effective energy generation and sustainable resource utilization and thereby substantial cost reductions which enable to offer products at a competitive price. The purpose of this study was to identify CP opportunities in a leading Sri Lankan tyre retreading plant and to investigate the impact of CP implementation on resource efficiency and environment. Production process starting from unloading raw materials to the end product was assessed using UNEP/UNIDO standard CP methodology. Material and energy consumption of each process step and water usage were evaluated leading to a complete material balance and relevant calculations in terms of energy and water utilization. The calculations revealed substantial wastes in all three forms where material wastage accounted for the highest. The results of the study indicate that numerous CP opportunities exist in the production process. Among the brainstormed CP options, options with less significant efforts and investments can be implemented immediately while others could be screened through a feasibility analysis in terms of technical, economical and environmental terms. Some of the selected options were implemented during the period of study and there was a monetary-alone saving of four million rupees per month. Inability to implement all the feasible CP options limited the observation of actual impact of CP implementation. However, the study helped identify plentiful options that can be implemented in tyre retreading industry in general. Finally, the attitude and commitment of the entire organisation do have a strong effect on CP implementation. To implement CP successfully time, continuous involvement and capital investments are also needed.

**Keywords:** Cleaner production, Retreading, Tyre, UNEP/UNIDO